

Final Report for NASA Grant No. NAG5-692

Title: Cleft Ion Fountain Energization Region - SCIFER

Principal Investigator: Dr. Roger L. Arnoldy, University of New Hampshire

Recipient: Office of Sponsored Research, 111 Service Bldg., University of
New Hampshire, Durham, N.H. 03824

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The SCIFER rocket was successfully launched from the Andoya Rocket Range on January 25, 1995. All of the UNH science experiments worked very well and a suite of first ever rocket data in the dayside cusp at altitudes over 1000 km was obtained. This work resulted in the following publications and presentations to the scientific community.

Oral papers presented:

Lynch, K.A., R.L. Arnoldy, R.B. Torbert, C.A. Kletzing, J.D. Scudder, Polar Hydra particle data-comparison with sounding rocket observations, EOS Trans. Am. Geophys. Un. 78, Spring AGU, Baltimore, 1997.

Kintner, P., J. Bonnell, R. Arnoldy, and K. Lynch, Ion acceleration and plasma waves in the mid-altitude cleft ion fountain, EOS Trans. Am. Geophys. Un. 77, Spring AGU, Baltimore, 1996.

Arnoldy, R.L., C.S. Deehr, P. Kintner, J. Olson, H. Luhr, D. Lorentzen, R. Smith, H.C.S-Nielsen, K. Lynch, and T. Hallinan, SCIFER-Pulsating aurora in the pre-noon sector, its origin in the magnetosphere and some related dayside ionospheric signatures, EOS Trans. Am. Geophys. Un., 77, Fall AGU San Francisco, 1996.

Published papers:

Arnoldy, R.L., K.A. Lynch, P.M. Kintner, J. Bonnell, T.E. Moore and C.J. Pollock, SCIFER: Structure of the cleft ion fountain at 1400 km altitude, Geophys. Res. Lett. 23, 1869, 1996.

Kintner, P.M., J. Bonnell, R. Arnoldy, K. Lynch, C. Pollock, and T. Moore, SCIFER: Transverse ion acceleration and plasma waves, Geophys. Res. Lett., 23, 1873, 1996.

Moore, T.E., C.J. Pollock, M.L. Adrian, P.M. Kintner, R.L. Arnoldy, and K.A. Lynch, SCIFER: The cleft ion plasma environment at low solar activity, Geophys. Res. Lett., 23, 1877, 1996.

Pollock, C.J., T.E. Moore, M.L. Adrian, P.M. Kintner, and R.L. Arnoldy, SCIFER: Cleft region thermal electron distribution functions, Geophys. Res. Lett., 23, 1881, 1996.

Lorentzen, D.A., C.S. Deehr, J.I. Minow, R.W. Smith, H.C. Stenbaek-Nielsen, R.L. Arnoldy, and K. Lynch, SCIFER: Dayside auroral signatures of magnetospheric energetic electrons, Geophys. Res. Lett., 23, 1885, 1996.

Report on New Technology

No new technology was developed under this grant.